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ABSTRACT

This study investigated the performance of 28 journalism students in making structural and mechanical/stylistic editing changes in spot news stories on video display terminal (VDT) screens and in hard copy. Results showed that editing on the VDT screen resulted in more structural and fewer mechanical/stylistic changes; academically superior students were better able to use the VDT to make structural changes. Structural editing performance was also associated with the students' personal writing habits. (Thirteen notes are included.) (Author/SR)

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# IMPACT OF THE VDT ON STRUCTURAL VS. MECHANICAL EDITING AMONG STUDENTS

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# IMPACT OF THE VDT ON STRUCTURAL VS. MECHANICAL EDITING AMONG STUDENTS


## Abstract

An experiment tested the performance of 28 journalism students in making structural and mechanical/stylistic editing changes in spot news stories on VDT screens and hard copy. Editing on the VDT screen resulted in more structural and fewer mechanical/stylistic changes; academically superior students were better able to use the VDT to make structural changes. Structural editing performance was also associated with the students' personal writing habits.

# IMPACT OF THE VDT ON STRUCTURAL VS. MECHANICAL EDITING AMONG STUDENTS

The use of video display terminals for writing and editing news copy is quickly becoming a norm in both the newsroom and the classroom. The expanding use of VDTs has occasioned professional and scholarly interest in their impact on writing and editing quality. However, studies of VDTs' impact on editing have focussed primarily on close editing--mechanics, sentence construction--and not on more extensive rearranging and rewriting of copy.

One experiment among journalism undergraduates found similar accuracy correcting redundancy and punctuation errors on VDT and hard copy, but considerably slower speeds on VDTs.[1] Another experiment among undergraduates had similar findings. Students, given a fixed time to edit 200-word stories, did not catch as many errors on the VDT as they did on hard copy. They also did not cut the stories as much, though this difference was not statistically significant.[2] In both cases, however, students had only about 10 hours of experience on the VDTs; their relatively poorer performance might well have been attributable to lack of VDT editing practice.[3]

These studies on copyediting have focused mostly on mechanical errors, sentence structure, and cutting redundancy. Relatively little attention has been paid to structural revision--exhuming buried leads, reordering facts to better fit an inverted-pyramid format. This kind of revision is especially important in training student journalists.

The existing literature on VDT use leads to concerns about the impact of VDTs on structural editing. Some work on use of VDT suggests that the mechanical difficulty of moving between screens should inhibit reading the text as a structural whole, and thus should interfere with editing efforts to improve overall structure.[4] A study of four writing students having their first exposure to word processing equipment had several outcomes (though these were not subjected to statistical test): on the VDT, students revised more within words, phrases, and clauses; they substituted words more; and they reworked their revisions more on VDTs than on hard copy.[5] However, the students did more revisions of sentences and paragraphs on hard copy, similar to the tendency found by Bennett, Murray, and Stempel to cut redundancies more on hard copy.[6] There was also a tendency to recognize and correct fewer mechanical errors using the VDT, again similar to previous findings. Therefore, we hypothesize

H1: Students will show better performance on structural editing on hard copy rather than on VDT.

This concern about structural editing can also be expressed in other terms--is use of the VDT associated with a tendency to focus more on structural or on mechanical/stylistic editing? Given the potential problems of VDT editing, one might expect

H2: The ratio of structural to mechanical/stylistic editing will be greater for hard copy editing than for VDT editing.

Students and professionals, the research suggests, do not seem to work with equal facility on the VDT: professionals are only marginally less efficient correcting mechanics on the VDT than on hard copy; students seem distinctly slower correcting

mechanics on VDT screens. This may simply be a function of level of experience with VDT. Students who have had more extensive training on the VDT, then, should have relatively trivial differences in mechanical/stylistic editing efficiency. If in fact proficiency in mechanical/stylistic editing on the VDT is primarily a function of experience among students and among professionals, then

H3: The greater the experience with VDT editing, the better the editing performance on the VDT relative to hard copy editing.

In addition, some other factors might influence performance by students. Collier reported that the academically stronger students (in a sample of four) were better able to take advantage of the VDT.[7] We might expect, then, that

H4: VDT performance on editing tasks will be stronger relative to hard copy for the more academically capable students.

## Methods

An experiment was conducted using 28 students from a news editing class taught by one of the authors. Students had two full semesters of writing and editing experience on VDTs using an IBM PS/2 network, in addition to desktop publishing training.

Our procedure was similar to that used by Bennett, Murray, and Stempel.[8] Two spot news stories, each about 250 words long, were created to contain a wide variety of spelling, typographical, stylistic, and structural errors. Half the students edited Story 1 on hard copy and Story 2 on the VDT; the other half edited Story 1 on VDT and Story 2 on hard copy. Presentation order was counterbalanced within each group. The result was a Greco-Latin square that provided statistical control

over sequence, serial position, story, and individual differences.[9]

Editing efficiency was measured by the number of structural and mechanical/stylistic changes made in a fixed time period (15 minutes). Eight graduate students coded the data, with a reliability of .83 for structural changes and .88 for mechanical/stylistic changes. Structural changes were defined as changes in which paragraphs were transposed or phrases or sentences moved from one paragraph into another. Rewriting of rearranged text in order to create a new lead or make transitions flow appropriately were coded as part of the single structural change, not as several mechanical/stylistic changes. A brief questionnaire collected data on grade point average, amount of experience with VDT editing, and writing and editing style.

## Results

Analyses of variance found statistically significant relationships between the experimental treatment and the amount of structural editing, and the ratio of structural changes to mechanical/stylistic, among students--in the opposite direction to that predicted. Students made more structural changes editing on the VDTs (mean=1.8 changes per story) than editing on hard copy (mean=1.1 changes per story, $F(1,24)=6.48$, $p=.018$). The ratio of structural to mechanical/stylistic changes was also significant in the opposite direction to that predicted: the mean ratio was .06 on hard copy and .19 on the VDT ($F(1,24)=6.18$, $p=.02$). It should also be noted that VDT editing by students was associated with fewer mechanical/stylistic changes (mean VDT changes=14, mean hard copy changes=22, $F(1,24)=32.01$, $p=.001$).

The relationship between VDT experience and editing performance, as measured by correlations between word processing experience and amount of structural and mechanical/stylistic changes, was not statistically significant. Analyses did tend to support Hypothesis 4, which stated that more academically capable students should perform better editing on the VDT than less capable students, relative to hard copy editing. However, this hypothesis was supported with respect to structural changes only, not with respect to mechanical/stylistic changes. In the VDT editing condition, the Pearson correlation between grade point average (GPA) and structural editing was .47 (N=26, p=.014), compared to a correlation of .10 (N=26, p=.62)in the hard copy condition. Correlations between grade point average and mechanical/stylistic editing were non-significant in both conditions.

Correlations between editing performance measures and measures of writing and editing style were also tested. The subjects' self-reported propensity to "just sit down and start writing without a lot of preliminaries" was negatively related to making structural editing changes in both experimental conditions (VDT condition: r=-.53, p=.004; hard copy condition, r=-.47, p=.021, N=28), but was not significantly related to mechanical/stylistic editing performance. Subjects' self-reported tendency to "read through the whole article before I begin editing" was not significantly related to mechanical/stylistic editing, nor, more surprisingly, was it significantly related to structural editing.

## Discussion

Apparently, editing on VDTs enhances both the amount of and relative attention to structural editing by students--opposite to the effect predicted. Certainly, this should be encouraging news for those educators--and editors--attempting to train fledging journalists to their trade. Why did the predicted relationship not manifest? Reviewing the edited stories suggested students were more willing to make substantial rewriting changes at the keyboard. Stories tended to flow better. Perhaps the mechanics of transposition on hard copy--brackets, arrows, and marginal interpolation of revised copy--simply were clumsier for students trained on VDTs than electronic cut-and-paste and retyping a revised paragraph. In addition, the stories in this experiment were short, requiring movement between only two screens. Had the stories been longer, with multiple screens, rearrangement might have proven more difficult.

These findings superficially seem at variance with some of the results reported by Bennett, Murray, and Stempel, and by Collier.[10] While Bennett, Murray, and Stempel found more cutting of redundancy in the hard copy condition, it may be that deletion--lining out text--is the one form of rewrite that is mechanically easier on hard copy than on VDT. In fact, cuts were not considered structural editing in this study unless they also involved rearrangement of information between paragraphs. Collier's study, in turn, did not examine structural changes between paragraphs, as defined in this study, but rather changes in sentence and paragraph structure. Such revision within the sentence and paragraph was also defined as stylistic change

rather than structural change in this study.

Given the relatively extensive experience of these students on VDTs (two semesters) we did not anticipate the relatively greater number of mechanical/stylistic changes on hard copy. To some extent this may have been due to a trade-off between rewriting and close editing in a limited (15 minute) time. However, close editing--transposing letters, inserting or deleting a word or short phrase, etc.--may also be intrinsically easier on hard copy. Visual detection of mechanical errors might also be slightly more difficult on a VDT. A follow-up study in which subjects have an unlimited time to complete their editing might clarify whether or not students do a more thorough, as well as a faster, job on close editing using hard copy.

The lack of a statistically significant relationship between word processing experience and editing performance is not entirely surprising here, given that all students were relatively experienced in using the word processing program. The relationship between grade point average and structural editing performance--in which grade point average was significantly related to structural editing in the VDT but not in the hard copy condition--is intriguing. It does suggest, much as did Collier's findings, that the more academically able students are better able to use the VDT as a tool to handle the more sophisticated, challenging editing problems.[11]

The results of this study highlight several issues and several opportunities for the teaching of newswriting and editing. First, students underemphasized structural editing.[12]

Fears that VDTs interfere with such editing, however, seem to be unfounded. In fact, VDTs may facilitate students'--especially the more academically able students'--efforts to rewrite copy. Editing assignments that demand extensive rewrite on the VDT might, then, strengthen VDT skills, increase confidence in the ability to rewrite on screen, and improve the likelihood that the student will undertake such rewriting when necessary. Finally, greater emphasis on structural editing was associated not with reading stories through before editing, but with use of preliminaries before writing. This finding, though intuitively surprising, is consistent with recent writing research: Preliminary planning of a writing task increases focus on text structure.[13] When student journalists habitually make planning explicit, they may be better able to edit other people's copy for structural problems as well as, presumably, writing better-organized copy themselves. Strengthening students' ability to do structural editing may rest as much with the newswriting instructor as with the editing instructor.

Footnotes

[1]James A. Crook, "How the New Technology Affects Student Editing," Journalism Educator, January, 1977, pp.12-15, 46.

[2]Roger Bennett, Randall L. Murray, and Guido H. Stempel III, "Editing Accuracy Drops with VDTs, Ohio Study Shows," Journalism Educator, July, 1977, pp.11-12.

[3] The advantages of hard copy editing found among students is less evident among professionals. Studies at one newspaper suggested improvements in quality of mechanics--spellings, typographic errors, sentence construction--with the introduction of VDT editing, see Starr D. Randall, "Effect of Electronic Editing on Error Rate of Newspaper," Journalism Quarterly 56:161-165 (1979). Shipley and Gentry found some tendency for VDT editing of mechanical errors to be more accurate but slower, though not at statistically significant levels, in a field experiment among copyeditors at several newspapers, see Linda J. Shipley and James K. Gentry, "How Electronic Editing Equipment Affects Editing Performance," Journalism Quarterly, 58:371-374, 387 (1981). A survey of copy editors also found that editors rate VDT editing as cleaner and faster than hard copy editing, see William R. Lindley, "From Hot Type to Video Screens: Editors Evaluate New Technology," Journalism Quarterly, 65:485-489 (1988).

[4]Peter Brown, "Viewing Documents on a Screen," from Steve Lambert and Suzanne Ropiequet (eds.), CD Rom: The New Papyrus (Seattle, WA: Microsoft Press, 1986).

[5]Richard M. Collier, "The Word Processor and Revision Strategies," College Composition and Communication, 34:149-155.

[6]Bennett, Murray, and Stempel, op cit.

[7]Collier, op cit.

[8]Bennett, Murray, and Stempel, op cit.

[9]Robert C. Calfee, Experimental Methods in Psychology (New York: Holt, Rinehart, and Winston, 1985).

[10]Bennett, Murray, and Stempel, op cit; Collier, op cit.

[11]Collier, op cit.

[12]The ratio of structural to mechanical/stylistic changes made by students was less than half of that done by a group of professional journalists editing the same stories when on hard copy, and about 25% less than when on VDTs (most of the professionals were inexperienced with the editing software used on the VDTs in this study).

[13]Linda Flower and John R. Hayes, "A Cognitive Process Theory of Writing," College Composition and Communication, 32:365-387 (1981); also by the same authors, "Images, Plans, and Prose," Written Communication 1:120-160 (1984).